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Oral dietary management in people with an ileostomy: a scoping review protocol

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Background

It is estimated that approximately one in 500 people in the UK currently have a stoma.[1] A stoma is a surgical opening in the abdomen formed to divert the tract through which faeces or urine is excreted.[2] Ileostomies and colostomies are the most common forms of stoma and are created to enable faecal contents to be discharged into an external pouch from the ileum or colon, respectively.[2] Jejunostomies are a less common form of intestinal stoma, for removal of faecal contents from the jejunum.[3] Urostomies are a type of stoma created for urine excretion.[2] Collectively these different types of stoma are often referred to as ostomies and people with a stoma called ostomates. Stomas for faecal excretion are created when there is damage or disease to the intestine and part of the small and/or large intestine needs to be rested for a long period or removed.[4] Commonly this occurs in conditions such as colorectal cancer, Crohn's disease, and Ulcerative Colitis.[5]

The issues and nutrition related complications associated with stomas vary between the types of stoma. The risk of nutrition related complications and the need for dietary intervention is greater in people with a stoma of the gastrointestinal (GI) tract than those with urostomy.[6] From this point forward, the term stoma or ostomy will be used to refer only to ileostomy, colostomy and jejunostomy. Urostomies will not be considered further within this review.

A colostomy usually passes soft, formed stool approximately once daily, depending on diet and physical activity,[6] whereas normal output for an ileostomy is approximately 600-800ml/day loose faeces of porridge-like consistency.[7] People with an ileostomy, and even more so with jejunostomy, are at greater risk of nutritional deficiencies than people with a colostomy due to removal of the colon and varying amounts of the ileum.[8,9] The colon reabsorbs fluids and electrolytes, therefore, people with an ileostomy or jejunostomy have greater losses of these in their faeces and looser output.[10,11] Definition of high-output stoma varies and is usually considered as output greater than between 1 and 2L/day.[8,10,11] Mismanagement of high-output stomas can lead to dehydration, acute kidney injury and malnutrition.[10,12] The shorter the length of GI tract left available for digestion, the greater the risk of malabsorption of nutrients, and therefore malnutrition.[13] Dietary advice involving high energy/protein diet and oral nutritional supplement drinks may be required to prevent or resolve malnutrition.[10,14] People with less than 200cm of small intestine remaining for digestion and absorption of nutrients may require artificial feeding (enteral or parenteral nutrition) to prevent malnutrition.[14]

Dietary management is recommended for the following complications associated with having a stoma: high output, loose output, constipation, blockage, wind and odour.[6] High and/or loose output and blockage are common complications in people with an ileostomy or jejunostomy.[15,16] Constipation and odour are more common complications of a colostomy.[16,17] Aspects of dietary management include: fibre restriction to prevent blockage and high output;[6,8,12] oral rehydration solutions and/or fluid

restriction for high output;[8,12] added salt for people with high output ileostomy;[12] white, starchy carbohydrates and gelatine containing sweets to thicken output;[18] increased fibre and fluid for constipation;[6,19] avoidance of onions, beans and carbonated drinks to reduce wind.[6] Acceptability of, and adherence to, dietary interventions for stoma management is important in improving clinical and patient reported outcomes. Contradictory messages for healthy eating and some aspects of stoma management may affect adherence.[20] Additionally, rehydration solutions may not be palatable to many.[21]

As well as affecting nutritional status, complications of having a stoma may also include detrimental effects on quality of life,[22] and, for severe complications such as persistent high-output stoma and blockage, require a hospital admission.[6,12] Management of complications through diet, alongside medication where diet alone is insufficient, is extremely important for patient well-being and to reduce burden to health services. However, despite the common use of dietary management strategies mentioned above, there is a distinct lack of current and high-quality evidence on which to base these recommendations, and much of the evidence to date appears to be from expert opinion. In practice, dietary advice for stoma management may be provided by multiple health professionals including dietitian, stoma nurse, other nurses, doctor or surgeon,[6,23] or by associations offering support to people with a stoma, for example the Ileostomy and Internal Pouch Support Group.[24] However, it has been reported that stoma patients commonly feel that the dietary advice they receive is insufficient, lacking in quality, inconsistent, and can be conflicting.[18,23,25,26] An example of variation in suggested dietary management after stoma surgery can be found within the nursing literature; one article suggests that all fruit except bananas should be avoided for a short period following ileostomy formation, and then gradually reintroduced,[6] whereas another suggests that soft fruit without skins are unlikely to pose a problem.[18] Discrepancies between opinion articles likely represent differences in practice within and between healthcare professions. Further work to establish the effectiveness of dietary strategies for specific types of stoma and symptoms, potentially at different time frames following surgery, is needed to inform clinical practice.

Preliminary searches of the literature suggest that insufficient evidence is available from dietary intervention studies in people with a stoma for a systematic review and meta-analysis of effectiveness to be carried out. A scoping review is proposed to identify and map the current extent and types of research and peer-reviewed expert opinion relating to the oral dietary management of ileostomies. The results of this review will be used to highlight areas in need of further research, and to inform future studies by identifying potential dietary strategies and outcomes to be investigated.

A preliminary search for existing reviews on dietary intervention for people with a stoma was carried out on 18/12/17 using the following databases: Joanna Briggs Institute (JBI) EBP database, PROSPERO, Cochrane Database of Systematic Reviews (CDSR), MEDLINE, and CINAHL. No existing reviews similar to the proposed scoping review were found.

Review questions and objective

The objective of this scoping review is to identify and map the types and extent of the evidence for oral dietary management of ileostomies.

The primary review question is:

What oral dietary strategies for managing ileostomies in humans have been reported?

Secondary review questions are:

What types of evidence have considered oral dietary strategies for managing ileostomies?

What aspects of ileostomy management, for example stoma output or flatulence, are the oral dietary strategies considered to affect?

What sources do people with an ileostomy receive dietary advice from?

Keywords

diet; ileostomy; nutrition; stoma

Inclusion criteria

Participants

This review will only consider evidence relating to people with an ileostomy. Evidence relating to people with an ileostomy due to any condition, for example Crohn's Disease, Ulcerative Colitis, or Colorectal Cancer, will be included since common dietary advice for ileostomy management is provided irrespective of underlying condition.[6] In practice, dietary management of the underlying condition may need to be considered alongside dietary management of the stoma.[23]

This review focuses on people with an ileostomy due to the greater risk of severe complications associated with dietary mismanagement compared to those with colostomies, as well as differences required in the oral dietary management of ileostomies compared to colostomies.[6,27,28] Evidence relating to jejunostomies will not be included in this review because jejunostomy surgery often results in severe malabsorption requiring restriction of oral intake and reliance on parenteral nutrition.[11]

There will be no restriction on age or sex in order to map and describe the full extent of the evidence related to the topic. Articles relating to babies not yet fully weaned and animal studies will be excluded.

Concept

The concept being considered in this review is oral dietary management of ileostomies. Dietary strategies may include: fibre modification, low residue, reintroduction diets, added salt, fluid modification, rehydration solutions, low fat, probiotics and/or prebiotics, foods suggested to promote

thickening of stoma output e.g. low fibre, starchy carbohydrate foods or gelatine containing sweets, and avoidance of specific foods associated with increased flatulence, e.g. onions and beans, or blockage, e.g. nuts and sweetcorn.[6,13,18]

Oral dietary management of nutritional consequences of having an ileostomy will also be included. For example, dietary advice to prevent or reverse dehydration and/or malnutrition due to high stoma output.[14] Dietary advice to prevent or reduce malnutrition may include a high energy and/or high protein diet and oral nutritional supplement drinks.[14]

Only evidence relating to oral dietary management will be included. Where the dietary management is artificial nutrition (enteral or parenteral nutrition), this will be excluded as it is beyond the scope of this review. If other components of oral dietary management for people with an ileostomy, that are not listed here, are found to be reported in the literature, these will also be included because the review aims to identify all types of oral dietary management that have been suggested for the management of ileostomies.

Outcomes will be aspects of stoma management including high-output stoma, loose stoma output, wind, odour, blockage, malnutrition, and dehydration.[29]

Context

Dietary advice may be provided in a variety of settings including hospitals, community healthcare, or via online or printed communications. Dietary advice given to patients in hospital may be relevant to or continued when they return home.[26] Therefore, the context will be left open to include hospital or community settings.

Evidence for inclusion in this review will not be restricted by country, language, or date, to enable the full extent of the evidence available to be mapped.

Types of sources

This scoping review will consider all types of quantitative and qualitative study designs and reviews (including narrative reviews/expert opinion articles termed as reviews). Quantitative studies include experimental designs (randomized and non-randomized controlled trials and quasi-experimental studies) and observational designs (cohort studies, case-control studies, cross-sectional studies, case studies and descriptive studies). Qualitative studies may include phenomenology, grounded theory, ethnography, and thematic analysis methodologies. Text and opinion-based evidence to be included will be expert opinion only. Guidelines, and documents disseminated by relevant associations/societies/institutions, such as international and national ileostomy associations, will be excluded as these are not usually peer-reviewed publications or research. If peer-reviewed publications of consensus guidelines are identified, these will be included.

Methods

The review will be carried out systematically using the JBI methodology for conducting scoping reviews.[30]

Search strategy

The search strategy aims to find published and unpublished studies, expert opinion and review articles. A three-step search strategy will be used in line with guidance from JBI.[30] An initial limited search of MEDLINE and CINAHL has been undertaken followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe articles. This informed the development of a search strategy which will be tailored for each information source. A full search strategy for MEDLINE is detailed in Appendix I. This meets the criteria for a draft search strategy for at least one database required in the PRISMA-P checklist[31] and by JBI.[32] The reference list of all articles selected for inclusion will be screened for additional relevant articles. Subject experts will be contacted to check for completeness in the list of articles identified by the reviewers for inclusion.

The databases to be searched include: MEDLINE, EMBASE and AMED via Ovid, CINAHL via EBSCO, Web of Science, CDSR, and JBI Database of Systematic Reviews and Implementation Reports. The trial registers to be searched include: ClinicalTrials.gov, WHO ICTRP, and Cochrane Central Register of Controlled Trials. The search for unpublished studies will include: OpenGrey, EThOS, ProQuest - Nursing and Allied Health Source Dissertations, and Google Scholar p1-20. All databases will be searched from date of inception.

Selection

Following the search, all identified citations will be collated and uploaded into EndNote X8 (Clarivate Analytics, PA, USA) and duplicates removed. Titles and abstracts will then be screened by two independent reviewers for assessment against the review inclusion/exclusion criteria. Articles and documents that may meet the inclusion criteria, and no exclusion criteria, will be retrieved in full. The full text of selected articles and documents will be assessed in detail against the inclusion/exclusion criteria by two independent reviewers. Full text articles or documents that do not meet the criteria for inclusion will be excluded and reasons for exclusion will be provided in an appendix in the final review report. The results of the search will be reported in full in the final report and presented in a PRISMA flow diagram in line with international standards.[33] Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

Data extraction

Data will be extracted from articles and documents into a charting form by two independent reviewers. The data charted will include specific details about the author/s, date and type of publication, country of origin, type of evidence and study design (if applicable), population, diet (including comparator if applicable), outcomes, setting, and key findings or recommendations. A draft charting form has been developed to ensure that appropriate data is extracted to enable the review questions to be answered (Appendix II). This charting form will be initially tested by two independent reviewers on three articles to check that all relevant information relating to the review questions is extracted. The charting form

will continue to be adapted as required during the review process and the final version included in the report of the scoping review. Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer. Authors of included articles will be contacted for clarification of information when necessary.

Data presentation

Results will be presented in a tabular summary according to study design, for example, randomized controlled trial (RCT), cohort study, phenomenology; or article type, for example, expert opinion. A draft results table has been developed and is included in Appendix III. This table will be adapted as required towards the end of the review process to ensure that all relevant data is presented. A diagrammatic map of the evidence will also be produced to highlight the level and quantity of evidence for each dietary intervention linked with a specific outcome. A narrative summary will synthesize the findings to provide a description of the evidence identified in relation to the review questions.

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Conflicts of interest

There are no conflicts of interest to declare.

References

1. Colostomy Association. Colostomy association: What is a stoma? [Internet]. Colostomy Association; 2017 [cited 2017 Dec 19]. Available from: http://www.colostomyuk.org/information/what-is-a-stoma/.
2. Burch J. Care of patients undergoing stoma formation: What the nurse needs to know. Nurs Stand. 2017;31(41):40-5.
3. Fulham J. Providing dietary advice for the individual with a stoma. Br J Nurs. 2008;17(2):S22-7.
4. National Health Service. Ileostomy [Internet]. NHS Choices; 2016 Mar 29 [cited 2018 Jan 8]. Available from: https://www.nhs.uk/conditions/ileostomy/.

5. Messaris E, Sehgal R, Deiling S, Koltun WA, Stewart D, McKenna K, et al. Dehydration is the most common indication for readmission after diverting ileostomy creation. Dis Colon Rectum. 2012;55(2):175-80.

6. Burch J. Providing information and advice on diet to stoma patients. Br J Community Nurs. 2011;16(10):479-84.

7. Black P. Practical stoma care. Nurs Stand. 1997;11(47):49-55.

8. Goodey A, Colman S. Safe management of ileostomates with high-output stomas. Br J Nurs. 2016;25(22):S4-S9.

9. Sentongo TA. The use of oral rehydration solutions in children and adults. Curr Gastroenterol Rep. 2004;6(4):307-13.

10. Medlin S. Nutritional and fluid requirements: High-output stomas. Br J Nurs. 2012;21(6):S22-5.

11. Mountford CG, Manas DM, Thompson NP. A practical approach to the management of high-output stoma. Frontline Gastroenterol. 2014;5(3):203.

12. Arenas Villafranca JJ, López-Rodríguez C, Abilés J, Rivera R, Gándara Adán N, Utrilla Navarro P. Protocol for the detection and nutritional management of high-output stomas. Nutr J. 2015;14(1):45.

13. Burch J. Nutrition and the ostomate: Input, output and absorption. Br J Community Nurs. 2006;11(8):349-51.

14. Baker M, Greening L. Practical management to reduce and treat complications of high-output stomas. Gastrointestinal Nursing. 2009;7(6):10-7.

15. Tilney HS, Sains PS, Lovegrove RE, Reese GE, Heriot AG, Tekkis PP. Comparison of outcomes following ileostomy versus colostomy for defunctioning colorectal anastomoses. World J Surg. 2007;31(5):1143-52.

16. Robertson I, Leung E, Hughes D, Spiers M, Donnelly L, Mackenzie I, et al. Prospective analysis of stoma-related complications. Colorectal Dis. 2005;7(3):279-85.

17. Krokowicz L, Bobkiewicz A, Borejsza-Wysocki M, Kuczynska B, Lisowska A, Skowronska-Piekarska U, et al. A prospective, descriptive study to assess the effect of dietary and pharmacological strategies to manage constipation in patients with a stoma. Ostomy Wound Manage. 2015;61(12):14-22.

18. Cronin E. Dietary advice for patients with a stoma. Gastrointestinal Nursing. 2013;11(3):14-24.

19. Kuczynska B, Bobkiewicz A, Studniarek A, Szmyt K, Krokowicz L, Matysiak K, et al. Conservative measures for managing constipation in patients living with a colostomy. J Wound Ostomy Continence Nurs. 2017;44(2):160-4.

20. Bulman J. Changes in diet following the formation of a colostomy. Br J Nurs. 2001;10(3):179-86.

21. Parrish CR, DiBaise JK. Managing the adult patient with short bowel syndrome. Gastroenterol Hepatol (N Y). 2017;13(10):600-8.

22. Kwiatt M, Kawata M. Avoidance and management of stomal complications. Clin Colon Rectal Surg. 2013;26(2):112-21.

23. Morris A, Leach B. Exploring individuals' experiences of having an ileostomy and crohn's disease and following dietary advice. Gastrointestinal Nursing. 2015;13(7):36-41.

24. IA. Ia the ileostomy and internal pouch support group [Internet]. IA; 2018 [cited 2018 Feb 9]. Available from: http://www.iasupport.org/.

25. Persson E, Gustavsson B, Hellström A-L, Lappas G, Hultén L. Ostomy patients' perceptions of quality of care. J Adv Nurs. 2005;49(1):51-8.

26. Short V, Atkinson C, Ness AR, Thomas S, Burden S, Sutton E. Patient experiences of perioperative nutrition within an enhanced recovery after surgery programme for colorectal surgery: A qualitative study. Colorectal Dis. 2016;18(2):O74-O80.

27. Baker ML, Williams RN, Nightingale JMD. Causes and management of a high-output stoma. Colorectal Dis. 2011;13(2):191-7.

28. Ng DHL, Pither CAR, Wootton SA, Stroud MA. The 'not so short-bowel syndrome': Potential health problems in patients with an ileostomy. Colorectal Dis. 2013;15(9):1154-61.

29. McDonough MR. A dietitian's guide to colostomies and ileostomies. Support Line. 2013;35(3):3-12.

30. Peters MDJ, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. Int J Evid Based Healthc. 2015;13(3):141-6.

31. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (prisma-p) 2015 statement. Syst Rev. 2015;4(1):1.

32. The Joanna Briggs Institute. Joanna briggs institute reviewers' manual: 2014 edition [Internet]. Australia: The Joanna Briggs Institute; 2014 [cited 2017 Dec 19]. Available from: http://joannabriggs.org/assets/docs/sumari/ReviewersManual-2014.pdf.

33. Moher D, Liberati A, Tetzlaff J, Altman DG, Prisma G. Preferred reporting items for systematic reviews and meta-analyses: The prisma statement. PLoS Med. 2009;6(7):e1000097.

Appendix I. Search strategy for MEDLINE (Ovid)

1. Ileostomy/

2. Ostomy/

3. ostom*.tw.

4. stoma.tw.

5. ileostom*.tw.

6. 1 or 2 or 3 or 4 or 5

7. Diet/

8. nutrition*.tw.

9. diet*.tw.

10. Diet, Fat-Restricted/

11. Dietary Fiber/

12. (fibre or fiber).tw.

13. Prebiotics/

14. Probiotics/

15. (probiotic* or prebiotic*).tw.

16. (food or eat* or drink*).tw.

17. Eating/

18. Drinking/

19. fluid*.tw.

20. Sodium/

21. sodium.tw.

22. Salts/

23. salt.tw.

24. Rehydration Solutions/

25. ("oral rehydration therap*" or "rehydration solution*").tw.

26. Electrolytes/

27. electrolyte*.tw.

28. Dietary Supplements/

29. supplement drink*.tw.

30. oral nutrition support.tw.

31. sip feed*.tw.

32. 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31

33. 6 and 32

34. Animals/ not Humans/

35. exp Animals, Laboratory/

36. exp Animal Experimentation/

37. Models, Animal/

38. Rodentia/

39. (rat* or mouse or mice).ti.

40. 34 or 35 or 36 or 37 or 38 or 39

41. 33 and 40

42. 33 not 41

Appendix II. Draft charting form

Reviewer **Date**

Author/s

Year **Record no**.

Journal/Source

Population

Condition requiring ileostomy

Age group

Other participant characteristics

Concept

Author/s profession/s

Details of dietary management (diet/mode/profession)

Outcomes

Key findings/recommendations

Context

Country

Setting

Source

Publication type

Evidence type

Methodology/design (including no. participants if applicable)

Conflicts of interest/funding sources

Comments

Appendix III. Draft table of results

	Population	**Concept**						**Context**		**Source**	
Reference	**Population**	**Author**	**Author/s profession**	**Dietary management**	**Outcomes**	**Key findings/ recommendations**	**Date**	**Country**	**Setting**	**Publication type**	**Evidence type**
Design e.g. RCT, cohort study etc., phenomenology, thematic analysis etc., expert opinion											
Citation	Condition Age group	Full names of authors	E.g. dietitian, stoma nurse, doctor	Dietary modification/s e.g. low/high fibre, high salt, fluid restriction/increase, rehydration solutions, low fat, probiotics, prebiotics, nutrition support, high energy/protein Format of advice provided e.g. face-to-face, online, booklet Professional/s providing dietary advice e.g. dietitian, stoma nurse, doctor Details of comparator if applicable	E.g. vol. or consistency of stoma output, blockage, wind, odour, dehydration, malnutrition	Main results or recommendations relating to dietary management of stoma	Year of publication	Country of origin	Hospital or community	E.g. Peer-reviewed journal, unpublished thesis	E.g. Research, expert opinion